16 January 1985

MEMORANDUM FOR: Members of the Office of Training and
Education Curriculum Committee

FROM: STAT

Chief, Topical Issues Branch

SUBJECT: Curriculum Committee New Course Checklist

1. The Topical Issues Branch is proposing to conduct a
statistical techniques course for Directorate of Intelligence
(DI) analysts. The course would be taught three times a week for
two hours over a seven week period. This course fits into a
series of functionally oriented courses and seminars conducted by
TIB.

2. This proposal is in response to a request from the
Director of European Analysis (D/EURA) of the DI. The request is
supported by Mr. Kerr, the Associate Deputy Director of
Intelligence, the DD/I Career Development Officer, and the Office
of the Inspector General.

3. The students will be DI employees who use or are expected
to use statistical techniques in their analysis. Students will
be tested and graded on their knowledge of the course material.

4. The course, which was designed by [   ] presents   STAT
applied statistical techniques by blending techniques with
practical analytical problems found in the DI. Emphasis is
placed on overcoming improper usage of statistical tools such as
deflators, measures of central tendency and indices. A
combination of lecture and practical exercises will be used.

5. The course schedule is presented in Attachment I. The
outline has been reviewed by [   ] Chief, Statistical   STAT
Analysis Staff, [   ] D/EURA, and members of the   STAT
Intelligence Training Division.   STAT

6. The course will be taught by [   ] He intends to   STAT
borrow and use statistics books from the Information Science
Training Division. This should keep dollar costs to a minimum.
DI will provide a classroom for the course at Headquarters.
Opportunity costs will be minimal.

SUBJECT: Curriculum Committee New Course Checklist

7. Upon approval, we will distribute an "OTE Special Training Bulletin" to DI training officers. The DI management structure will help identify students for this course.

8. In addition to using results of student tests, we will solicite student evaluations of course segments to evaluate and improve the course during its running.

STAT

2

STATISTICAL TECHNIQUES

FOR

DI ANALYSIS

COURSE OBJECTIVES

1. To provide DI analysts with the tools and presentation techniques of descriptive statistics (data summarization, graphs, tables, and charts) and inferential statistics (drawing inferences from measures of central tendency, dispersion, and probability distributions).

2. To alert the students to the most common misuses of statistical data and techniques encountered in draft DI publications and to provide tools to help avoid them.

3. To help DI analysts determine how and when to apply statistical techniques and how to interpret the results of properly applied techniques.

4. To develop a better understanding of the statistical methods used in decision theory; i.e., making judgments under conditions of uncertainty.

5. To familiarize DI analysts with basic statistical techniques useful for multidisciplinary analysis.

STATISTICAL TECHNIQUES FOR DI ANALYSIS

Monday, 4 February

1400-1600   Introduction   ☐ and   STAT
                                         CPAS Personnel

   Student Introductions. Outline of Course Objectives.
Overview of primary sources of economic data.

Tuesday, 5 February

1400-1600   Study Period   STAT

Wednesday, 6 February

1400-1600   Basic Arithmetic
                   and Algebra

   Review of arithmetic operations (rounding and significant
digits) and basic algebra (functions, graphs, scientific
notation, and transformations).

Thursday, 7 February   Study Period   STAT

Friday. 8 February

1400-1600   Ratios and Percentages

   Basic rules for calculation and proper presentation of ratios
and percentages. Simple indices of growth. Arithmetic and
geometric means.

Monday, 11 February

1400-1600   Data Collection and   CPAS
                   Presentation

   Assuring consistency in units of measure. Arranging data to
convey meaning and allow analysis. Good tabular presentation.

Tuesday, 12 February

1400-1600   Study Period   STAT

Wednesday, 13 February

1400-1600   Weighted Indices

   Computational procedures for constructing weighted indices
(Paasche, Laspeyres). Examples of current usage.

STATISTICAL TECHNIQUES FOR DI ANALYSIS

Thursday, 14 February

1400-1600   Study Period   STAT

Friday, 15 February

1400-1600   Time Series Analysis
                   and Forecasting

    Decomposition of time series (trend, cyclical, seasonal, and
irregular components). Use of smoothing methods.

Monday, 18 February   HOLIDAY

Tuesday, 19, February

1400-1600   Study Period   STAT

Wednesday, 20 February

1400-1600   Measures of Central
                   Tendency

    Derivation, meaning, and usage of mean, median, mode, and
geometric means.

Thursday, 21 February

1400-1600   Study Period   STAT

Friday 22 February

1400-1600   Measures of Dispersion

    Derivation, meaning and usage of measures of dispersion such
as range, variance, standard deviation, and coefficient of
variation. Chebychef's theorem.

Monday, 25 February

1400-1600   Aggregating Data   STAT

    Constructing frequency distributions. Derivation of measures
of central tendency and dispersion.

Tuesday, 26 February

1400-1600   Study Period   STAT

STATISTICAL TECHNIQUES FOR DI ANALYSIS

Wednesday, 27 February

1400-1600   Graphing Frequency   STAT
                   Distributions

    Use of histograms, frequency polygons, and ogives.

Thursday, 28 February
                                                                         STAT
1400-1600   Study Period

Friday, 1 March

1400-1600   Probability

    Classical probability, relative frequency, and subjective
probability. Exhaustive and mutually exclusive events.
Dependent and independent agents. Permutations and Combinations

Monday, 4 March

1400-1600   Special Probability   STAT
                   Distributions

    The binomial, Poisson, and normal distributions.
Relationship of measures of central tendency and dispersion of
these distributions. Sample size determination. Small and large
samples.
                                                                         STAT
Tuesday, 5 March   Study Period

Wednesday 6 March

1400-1600   Tests of Significance

    Hypothesis testing. Point and interval estimation. Type I
and II errors. Known and unknown standard deviations.

Thursday, 7 March
                                                                         STAT
1400-1600   Study Period

Friday, 8 March

1400-1600   Decision Analysis

    Subjective probability in intelligence. Bayesion
probability. Utility Analysis and Expected values. Decision
trees. Precursor Analysis.

STATISTICAL TECHNIQUES FOR DI ANALYSIS

Monday, 11 March

1400-1600   Statistical Analysis   STAT
                   for Measures of Dispersion

     Chi-square, F-test, and analysis of variance. Goodness of
Fit.

Tuesday, 12 March

1400-1600   Study Period   STAT

Wednesday, 13 March

1400-1600   Regression and
                   Correlation Analysis

     Linear and curvilinear relationships. Coefficient of
Determination. Least squares.

Thursday, 14 March

1400-1600   Study Period   STAT

Friday, 15 March

1400-1600   Regression and
                   Correlation Analysis continued

     Limitations of regression and correlation analysis. Standard
error of the estimate. Multiple regression and correlation
analysis.

Monday, 18 March   STAT

1400-1600   Non-Parametric
                   Statistics

     Mann Whiney Test. Rank correlation.

Tuesday, 19 March

1400-1600   Study Period

Wednesday, 20 March

1400-1600   Statistical Techniques
                   and Computers

     The availability of computer programs to assist in
statistical analysis.

STATISTICAL TECHNIQUES FOR DI ANALYSIS

Thursday, 21 March   STAT

1400-1600   Study Period

Friday, 22 March

1400-1600   Statistical Techniques
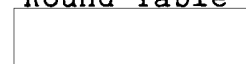   and Computers (continued)

Monday, 25 March

1400-1600   Analytical Perspectives   Round Table Discussion
                                                              and CPAS)   STAT

Wednesday, 27 March   STAT

1400-1600   Final Exam

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